FIG. 1

Conventional Buildout

Commercial

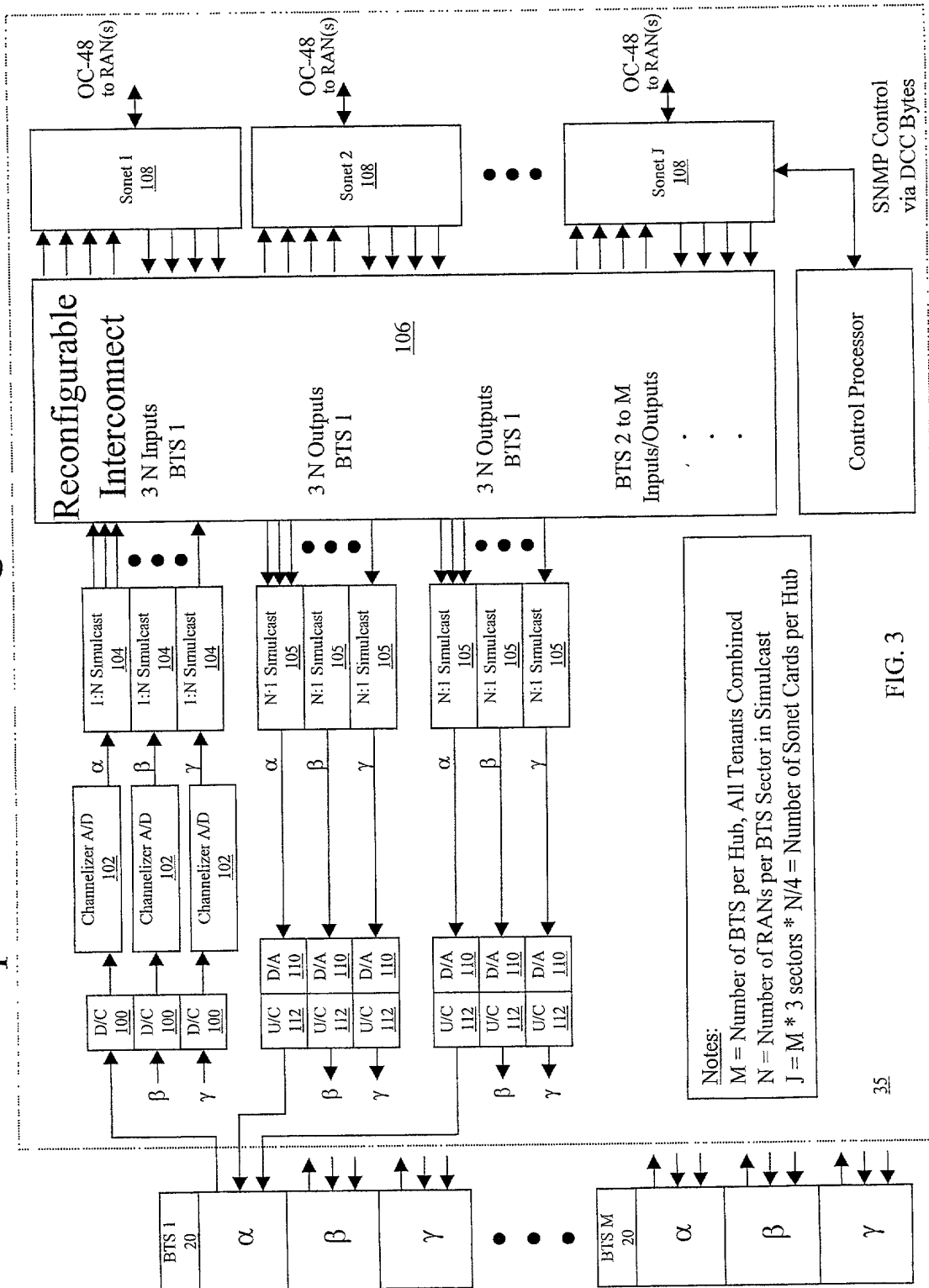Industrial

Business

40

Pole Mounted
Radio Access Nodes 50

10

FIG. 2

Open Access Hub Signal Path

OC-48 to RAN(s)

Sonet 1 108

OC-48 to RAN(s)

Sonet 2 108

● ● ●

OC-48 to RAN(s)

Sonet J 108

SNMP Control via DCC Bytes

Reconfigurable Interconnect

106

3 N Inputs BTS 1

3 N Outputs BTS 1

3 N Outputs BTS 1

BTS 2 to M Inputs/Outputs

● ● ●

Control Processor

1:N Simulcast 104
1:N Simulcast 104
1:N Simulcast 104

N:1 Simulcast 105
N:1 Simulcast 105
N:1 Simulcast 105

N:1 Simulcast 105
N:1 Simulcast 105
N:1 Simulcast 105

α β γ

Channelizer A/D 102
Channelizer A/D 102
Channelizer A/D 102

D/C 100
D/C 100
D/C 100

D/A 110
D/A 110
D/A 110

U/C 112
U/C 112
U/C 112

D/A 110
D/A 110
D/A 110

U/C 112
U/C 112
U/C 112

β γ

α β γ

α β γ

Notes:
M = Number of BTS per Hub, All Tenants Combined
N = Number of RANs per BTS Sector in Simulcast
J = M * 3 sectors * N/4 = Number of Sonet Cards per Hub

FIG. 3

35

BTS 1 20
α
β
γ

● ● ●

BTS M 20
α
β
γ

Open Access RAN Signal Path
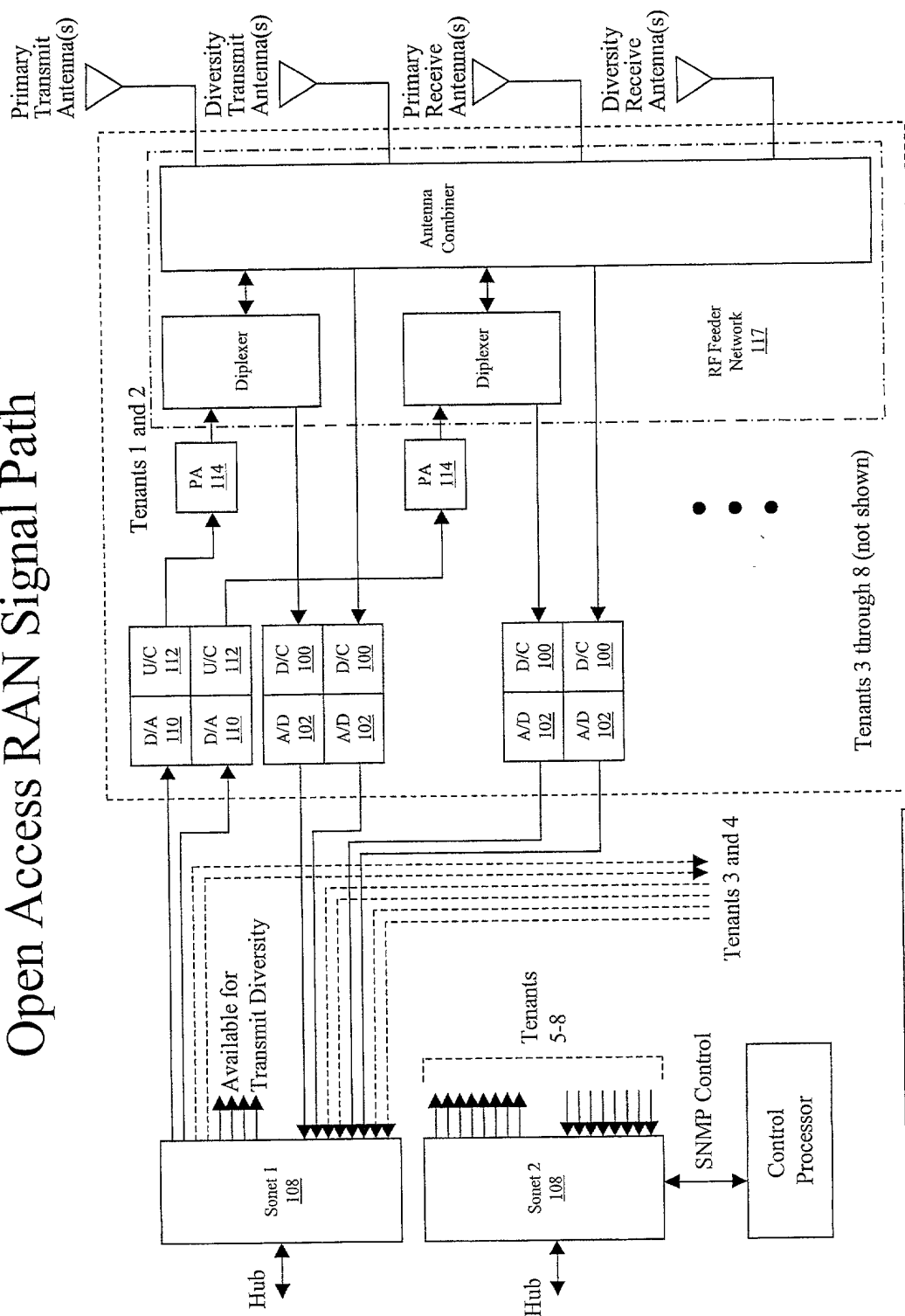
FIG. 4
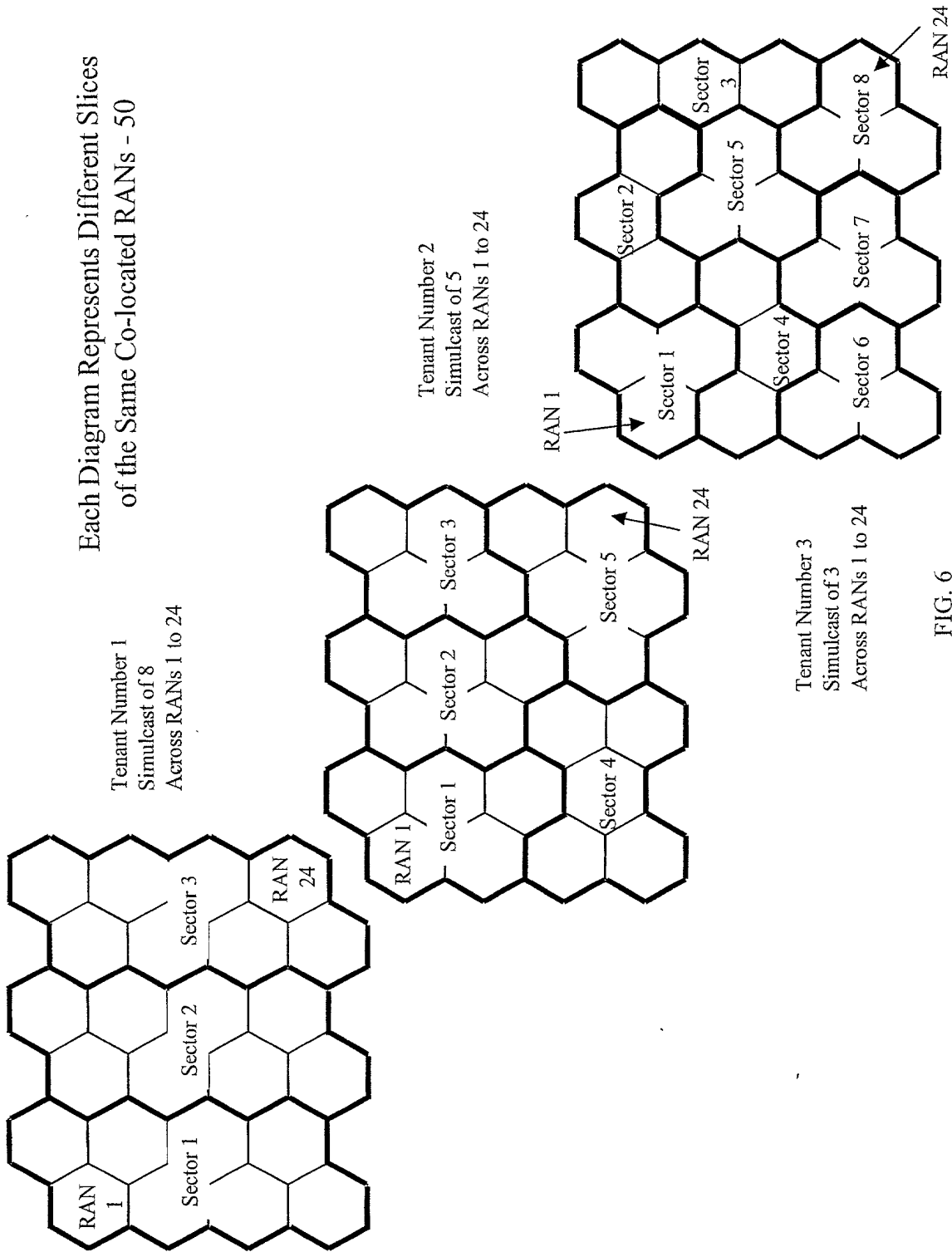
Note:
This diagram assumes max configuration (8 Tenants)

**Hub Interconnect Selects RAN 50 Simulcast
for each Base Station 20 RF Sector
This Equalizes RF Link Budgets at Each RAN 50**

FIG. 5

Each Diagram Represents Different Slices
of the Same Co-located RANs - 50

Tenant Number 1
Simulcast of 8
Across RANs 1 to 24

Tenant Number 2
Simulcast of 5
Across RANs 1 to 24

RAN 1

Sector 2

Sector 1

Sector 5

Sector
3

Sector 4

Sector 8

Sector 7

Sector 6

RAN 24

Tenant Number 3
Simulcast of 3
Across RANs 1 to 24

RAN 1

Sector 1

Sector 2

Sector 3

Sector 4

Sector 5

RAN 24

RAN
1

Sector 1

Sector 2

Sector 3

RAN
24

FIG. 6

Tenant Sends SNMP message to RAN
NMS/Firewall Forwards to System
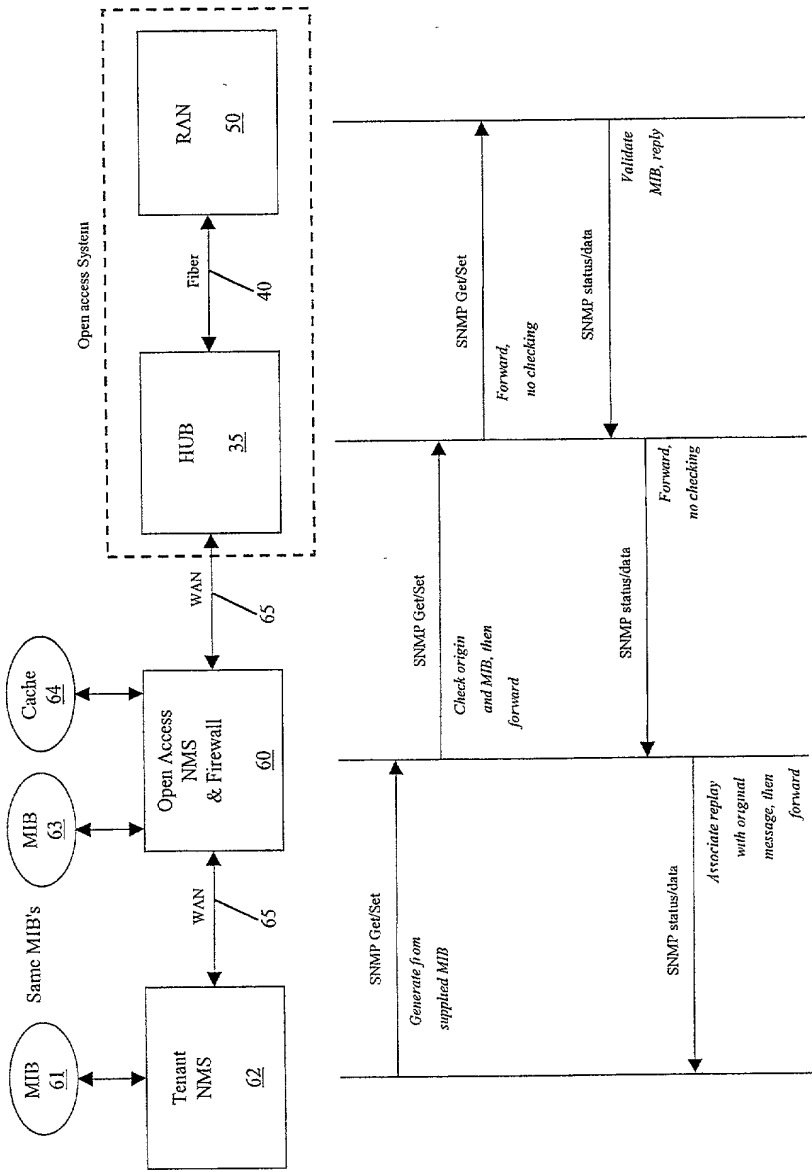
FIG. 7

Tenant Sends SNMP Message to RAN,

NMS/Firewall Detects Privilege Violation
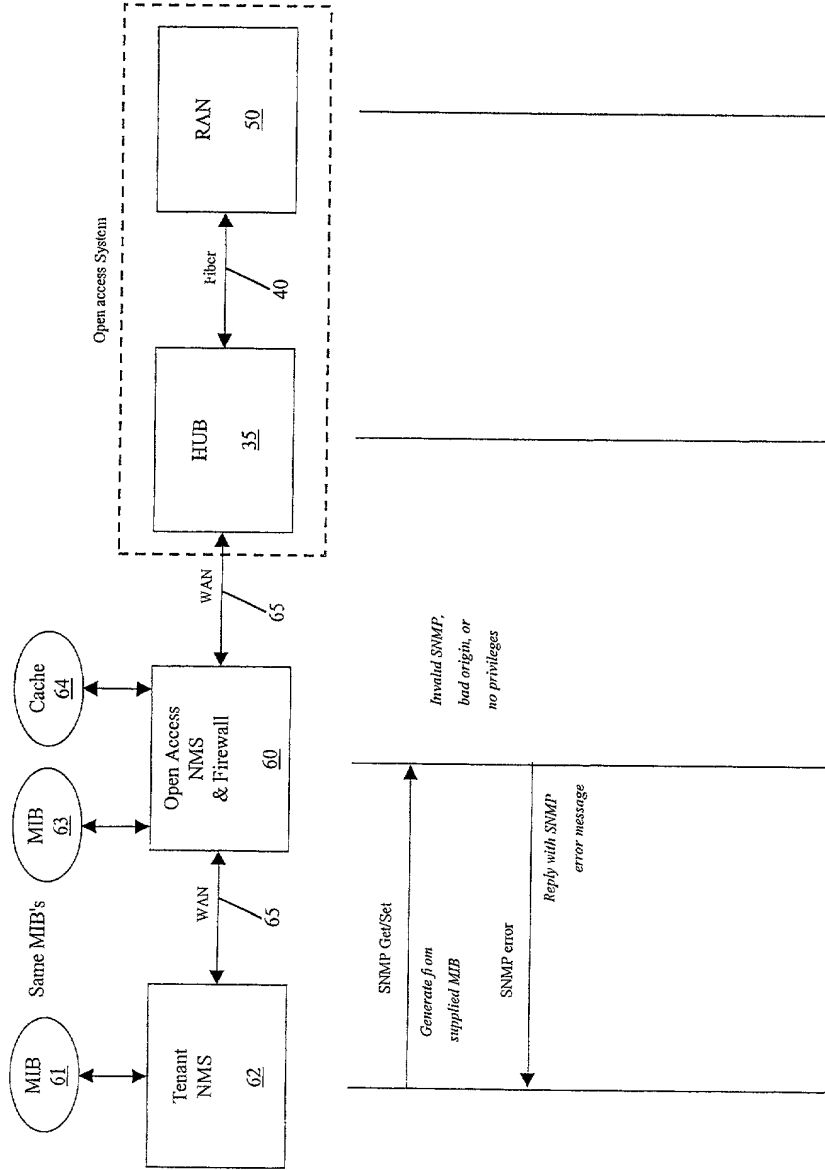

FIG. 8

Tenant Sends SNMP Get,

OpenCell NMS/Firewall Notes Recently Cached Data
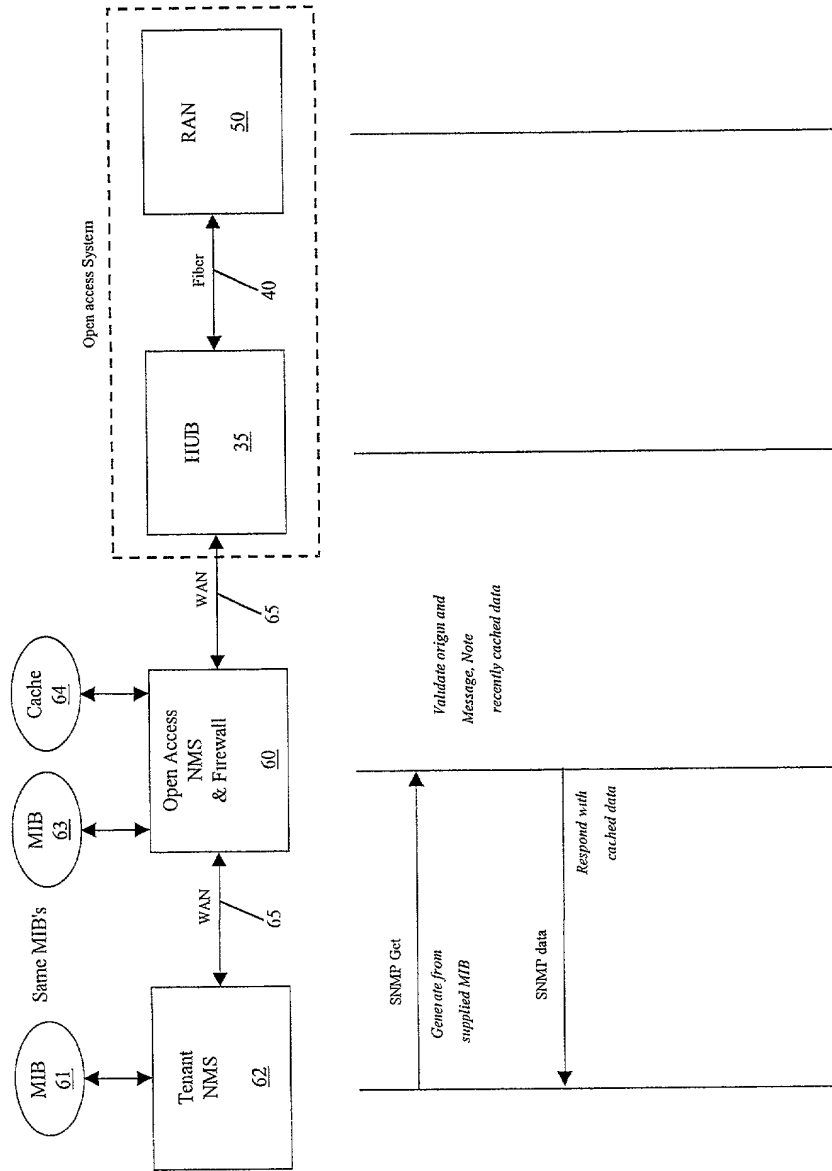

FIG. 9

Tenant Sends Database Query,
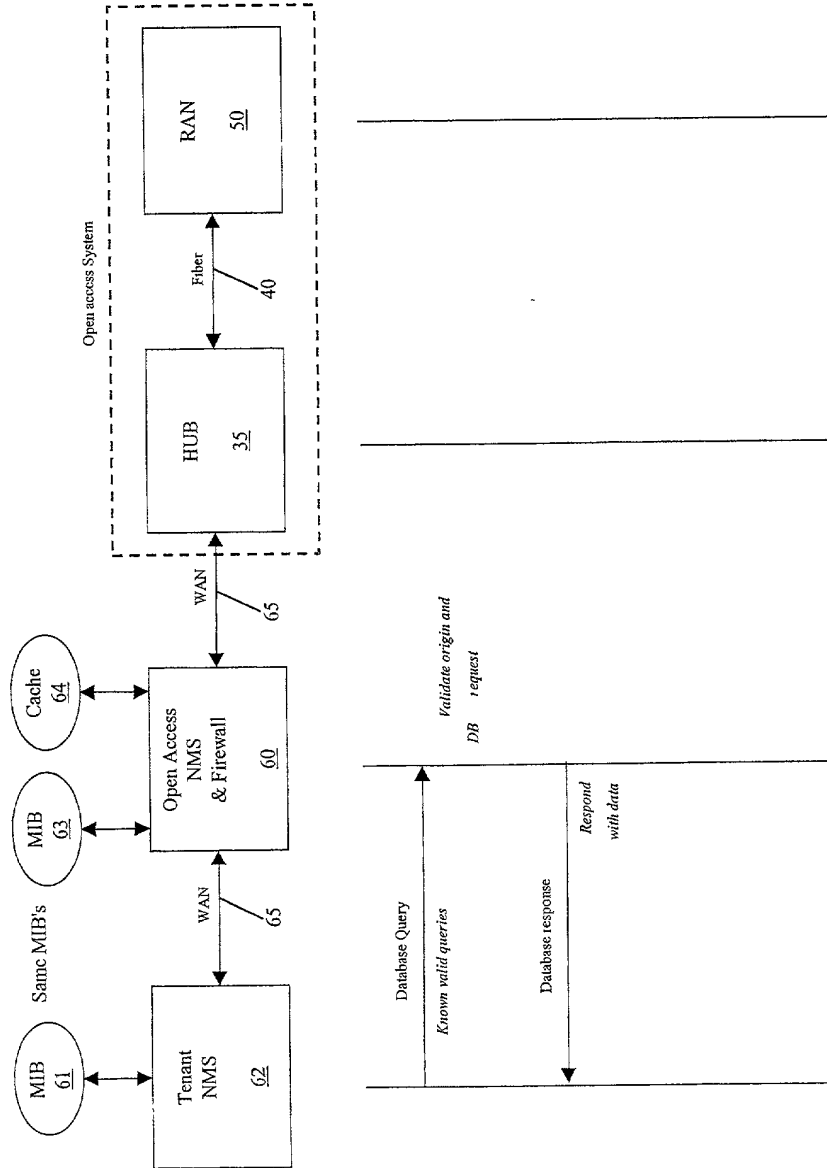
Operator NMS/Firewall Responds with Data

FIG. 10